Complete Summary

GUIDELINE TITLE

Prevention, diagnosis and treatment of failure to progress in obstetrical labor.

BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Prevention, diagnosis and treatment of failure to progress in obstetrical labor. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2003 Oct. 35 p. [38 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Failure to progress in obstetrical labor

GUIDELINE CATEGORY

Diagnosis
Prevention
Treatment

CLINICAL SPECIALTY

Family Practice
Obstetrics and Gynecology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel

Health Care Providers
Health Plans
Hospitals
Managed Care Organizations
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To prevent unnecessary protracted labor with use of the Failure to Progress in Obstetrical Labor guideline and its methods (e.g., timely monitoring)
- To increase the use of procedures that assist in progress to vaginal birth
- To increase the percent of women whose birth expectations include the potential use of techniques such as amniotomy, oxytocin or other interventions related to utilizing the Failure to Progress in Labor guideline

TARGET POPULATION

This guideline is intended for a limited population. This guideline does not apply to inductions. All of the following parameters must be present before application of the guideline is deemed appropriate:

- Nullipara female
- No concomitant medical problems
- At term pregnancy (36 completed weeks)
- Having contractions
- Singleton fetus
- Cephalic presentation
- No evidence of fetal distress
- Caregiver expects normal spontaneous vaginal delivery

Note: If there is any medical question about whether a patient fits these parameters, the guideline should not be applied to that patient.

INTERVENTIONS AND PRACTICES CONSIDERED

1. Antepartum labor and delivery education regarding the active management of labor, including information about medications
2. Intrapartum care including chart evaluation; frequent cervical examinations; amniotomy in absence of spontaneous rupture or contraindications; supportive care/comfort measures; pain relief using parenteral analgesics such as nalbuphine hydrochloride (Nubain), butorphanol tartrate (Stadol), meperidine (Demerol), or hydroxyzine hydrochloride (Vistaril) or epidural or intrathecal narcotics; documentation of progress of labor; and monitoring of fetal heart rate
3. Active management of labor for failure to progress including evaluation of potential causes; amniotomy (if not previously performed); analgesia; oxytocin augmentation, with electronic monitoring of fetal heart tones and uterine contractions; and obstetrical/surgical consult if necessary

4. Management of protraction disorders including evaluation of maternal position, fetus position, and fluid balance; oxytocin augmentation, and obstetric/surgical consult if necessary
5. Management of uterine hyperstimulation including changing the maternal position, administering oxygen, shutting off pitocin until recovery, and possible administration of terbutaline.
6. Vaginal delivery
7. Operative vaginal delivery including vacuum extraction or mid/low forceps delivery for continued failure to progress
8. Cesarean delivery for failure to progress after 2 to 4 hours of active management of labor or after evaluating other options (including operative vaginal delivery) as appropriate

MAJOR OUTCOMES CONSIDERED

- Duration of labor
- Rate and type of delivery including spontaneous vaginal, forceps, vacuum extraction or cesarean delivery
- Adverse fetal, neonatal and perinatal outcomes (morbidity and mortality)
- Adverse maternal outcomes
- Patient satisfaction

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Key conclusions (as determined by the work group) are supported by a conclusion grading worksheet that summarizes the important studies pertaining to the conclusion. Individual studies are classed according to the system presented below, and are designated as positive, negative, or neutral to reflect the study quality.

Conclusion Grades:

Grade I: The evidence consists of results from studies of strong design for answering the question addressed. The results are both clinically important and consistent with minor exceptions at most. The results are free of any significant doubts about generalizability, bias, and flaws in research design. Studies with negative results have sufficiently large samples to have adequate statistical power.

Grade II: The evidence consists of results from studies of strong design for answering the question addressed, but there is uncertainty attached to the conclusion because of inconsistencies among the results from the studies or because of minor doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from weaker designs for the question addressed, but the results have been confirmed in separate studies and are consistent with minor exceptions at most.

Grade III: The evidence consists of results from studies of strong design for answering the question addressed, but there is substantial uncertainty attached to the conclusion because of inconsistencies among the results of different studies or because of serious doubts about generalizability, bias, design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from a limited number of studies of weak design for answering the question addressed.

Grade Not Assignable: There is no evidence available that directly supports or refutes the conclusion.

Study Quality Designations

The quality of the primary research reports and systematic reviews are designated in the following ways on the conclusion grading worksheets:

Positive: indicates that the report or review has clearly addressed issues of inclusion/exclusion, bias, generalizability, and data collection and analysis.

Negative: indicates that these issues (inclusion/exclusion, bias, generalizability, and data collection and analysis) have not been adequately addressed.

Neutral: indicates that the report or review is neither exceptionally strong or exceptionally weak.

Not Applicable: indicates that the report is not a primary reference or a systematic review and therefore the quality has not been assessed.

Classes of Research Reports:

A. Primary Reports of New Data Collection:

Class A:

- Randomized, controlled trial

Class B:

- Cohort study

Class C:

- Non-randomized trial with concurrent or historical controls
- Case-control study
- Study of sensitivity and specificity of a diagnostic test
- Population-based descriptive study

Class D:

- Cross-sectional study
- Case series
- Case report

B. Reports that Synthesize or Reflect upon Collections of Primary Reports:

Class M:

- Meta-analysis
- Systematic review
- Decision analysis
- Cost-effectiveness analysis

Class R:

- Consensus statement
- Consensus report
- Narrative review

Class X:

- Medical opinion

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Institute Partners: System-Wide Review

The guideline annotation, discussion and measurement specification documents undergo thorough review. Written comments are solicited from clinical, measurement, and management experts from within the member groups during an eight-week review period.

Each of the Institute's participating member groups determines its own process for distributing the guideline and obtaining feedback. Clinicians are asked to suggest modifications based on their understanding of the clinical literature coupled with their clinical expertise. Representatives from all departments involved in implementation and measurement review the guideline to determine its operational impact. Measurement specifications for selected measures are developed by the Institute for Clinical Systems Improvement (ICSI) in collaboration with participating member groups following implementation of the guideline. The specifications suggest approaches to operationalizing the measure.

Guideline Work Group

Following the completion of the review period, the guideline work group meets 1 to 2 times to review the input received. The original guideline is revised as necessary and a written response is prepared to address each of the responses received from member groups. Two members of the OB/GYN Steering Committee carefully review the input, the work group responses, and the revised draft of the guideline. They report to the entire committee their assessment of four questions: (1) Is there consensus among all ICSI member groups and hospitals on the content of the guideline document? (2) Has the drafting work group answered all criticisms reasonably from the member groups? (3) Within the knowledge of the appointed reviewer, is the evidence cited in the document current and not out-of-date? (4) Is the document sufficiently similar to the prior edition that a more thorough review (critical review) is not needed by the member group? The committee then either approves the guideline for release as submitted or negotiates changes with the work group representative present at the meeting.

Pilot Test

Member groups may introduce the guideline at pilot sites, providing training to the clinical staff and incorporating it into the organization's scheduling, computer and other practice systems. Evaluation and assessment occurs throughout the pilot

test phase, which usually lasts for three-six months. At the end of the pilot test phase, ICSI staff and the leader of the work group conduct an interview with the member groups participating in the pilot test phase to review their experience and gather comments, suggestions, and implementation tools.

The guideline work group meets to review the pilot sites' experiences and makes the necessary revisions to the guideline, the OB/GYN Steering Committee reviews the revised guideline and approves it for release.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The recommendations pertaining to prevention, diagnosis, and treatment of failure to progress in obstetrical labor are presented in the form of an algorithm with 18 components, accompanied by detailed annotations. An algorithm is provided for Prevention, Diagnosis, and Treatment of Failure to Progress in Obstetrical Labor. Clinical highlights and selected annotations (numbered to correspond with the algorithm) follow.

Class of evidence (A-D, M, R, X) and conclusion grade (I-III, Not Assignable) definitions are repeated at the end of the "Major Recommendations" field.

Clinical Highlights

1. Confirm active labor before admitting to facility evidenced by:
    - Spontaneous contractions at least 2 per 15 minutes, and two or more:
        - Complete effacement of cervix
        - Cervical dilation ≥3 cm
        - Spontaneous rupturing of membranes (SROM)

    (Annotation 3)

2. Perform amniotomy early in labor unless one or more of the following occurs:
    - Spontaneous rupture of membranes
    - Presentation unknown, floating or unstable
    - Cervix dilated <3 cm
    - Patient refuses

    (Annotation 7)

3. Conduct frequent cervical checks (cervical checks afford best opportunity to detect labor progress and prevent failure to progress). (Annotation 8)
4. Augment with oxytocin to achieve adequate labor for 2 to 4 hours. (Annotation 9)
5. If patient is in Stage II labor and is not making progress, initiate management of protraction disorders (positioning, fluid balance, oxytocin augmentation, obstetrical/surgical consult). (Annotation 13)
6. Consider operative vaginal delivery or cesarean section. (Annotations 16 and 18)

Prevention, Diagnosis, and Treatment of Failure to Progress in Obstetrical Labor Algorithm Annotations

1. Antepartum 32 Weeks Labor and Delivery Education

   Patient and provider should discuss potential need for active management of labor, including information about medications.

2. Phone Triage for Labor

   Hospital and/or clinic phone triage for the labor patient will include these questions. Triage staff will assess general questions from obstetrical experience. Some questions may require more details for assessment. Generally the patient is encouraged to remain home as long as possible. The caregiver will manage any/all medical concerns according to accepted standards.

   General Questions:

   - Are you having contractions?
   - Is this your first baby?
   - Was your cervix dilated at least 2-3 cm on your last office visit?
   - Did you have medical complications during your pregnancy? Get specifics.
   - Are you at term? (What is your estimated date of conception?)

   Specific Questions:

   - Is your baby moving as usual?
     If No, advise go to hospital.
   - Has your water broken?
     If Yes, advise go to hospital.
   - Are you bleeding?
     If Yes, advise go to hospital.
   - Are you having unbearable contractions?
     If Yes, advise go to hospital

3. Is Patient in Labor?

   Labor is defined as:

   - Spontaneous contractions at least 2 per 15 minutes and at least two of the following:
     - Complete effacement of cervix
     - Cervical dilation 3 cm or greater (Cervical exam #1)
     - Spontaneous rupturing of membranes (SROM)

   Evidence supporting this recommendation is of class: R

Only patients who meet this definition of labor should be admitted for careful management of labor. Careful assessment of presenting patients is critical.

Patients who are not in labor should receive education which includes signs to look for, changes to assess, and reassurance that they can come back to the hospital when changes occur. (See Annotation Appendix A, "Patient Education Handout" in the original guideline document.) A patient may be placed on "hold" status for observation. Hold patients require medical reassessment before leaving the hospital.

5. Intrapartum Care

Characteristics of care for a patient at the time of admission to labor and delivery include:

- Chart evaluation
- Cervical exam # 2
- Appropriate supportive care/comfort measures as per individual provider (may include but are not limited to by mouth fluids, maintain fluid balance, position changes, back rubs, music, ambulation, bath/shower).

Evidence supporting this recommendation is of classes: C, D

- Adequate pain relief. This includes parenteral analgesics: (i.e. nalbuphine hydrochloride [such as Nubain], butorphanol tartrate [such as Stadol], meperidine [such as Demerol], or hydroxyzine hydrochloride [such as Vistaril] or epidural or intrathecal narcotics for patients in active progressing labor [continued dilation of the cervix]).
- Documentation of progress of labor using a graphic medium (partogram) is started on admission.

Evidence supporting this recommendation is of classes: A, C, M, R

- Monitor fetal heart rate (see the National Guideline Clearinghouse [NGC] summary of the Institute for Clinical Systems Improvement [ICSI] guideline Intrapartum Fetal Heart Rate Management).

7. Amniotomy Unless Contraindicated

Amniotomy should be done early in labor unless spontaneous rupture has occurred or contraindications are present. Early amniotomy reduces the need for failure to progress protocol. It is part of the prevention of failure to progress. Contraindications include:

- Presentation unknown, floating or unstable
- Cervix dilated <3 cm
- Patient refuses

Evidence supporting this recommendation is of classes: A, M

8. <1 cm Dilation for 2 Consecutive Hours?

   Labor progress is measured in dilation of the cervix. The only way to make this assessment is to do cervical checks. Cervical checks should indicate at least 1 cm dilation per hour. Frequent cervical checks afford the best opportunity for prevention of failure to progress.

   Evidence supporting this recommendation is of classes: A, C

9. Failure to Progress Diagnosis/Management of Labor

   Failure to progress is defined as cervical changes of less than 1 cm per hour for 2 consecutive hours. Active management of labor does not reduce the rate of cesarean section but may decrease the length of labor and increase patient satisfaction in nulliparas. [Conclusion grade II: See discussion Appendix A, Conclusion Grading Worksheet - Annotation #9 "Active Management of Labor" in the original guideline document]

   The sequence of management of labor includes:

   1. Evaluation of potential causes (check adequacy of labor with internal monitor). Adequate contractions are counted as a minimum of 200 montevideo units per 10-minute blocks of time over a 2-hour time period.
   2. Artificial rupture of membranes if membranes are intact and there are no contraindications (see Annotation #7, above).
   3. Ensure adequate analgesia as deemed appropriate by care provider.
   4. Oxytocin augmentation according to hospital protocol. Contraindications include unknown presentation or floating/unstable; patient refuses; unable to monitor contractions adequately.

      Electronic monitoring of fetal heart tones and uterine contractions is necessary when oxytocin is administered. Refer to the NGC summary of the ICSI guideline Intrapartum Fetal Heart Rate Management (Annotation #7) for criteria to guide discontinuance of oxytocin augmentation.

      Because of the risk of uterine hyperstimulation, an intrauterine pressure catheter should be encouraged in conjunction with a high-dose oxytocin protocol.

      Uterine hyperstimulation is defined as contractions lasting longer than 90 seconds, or more than five contractions in 10 minutes. Contractions can be managed by changing the maternal position and administering oxygen, shutting off the pitocin until recovery has occurred and possibly the administration of terbutaline 0.25 mg subcutaneously.

   5. Obtain an obstetrical/surgical consult if necessary. Cesarean delivery is done when patient is not making progress for 2 to 4 hours (regardless of oxytocin dosage or duration of oxytocin) after adequate contraction

pattern has been achieved on maximum oxytocin dose appropriately used.

Evidence supporting this recommendation is of classes: A, C, D, M, R

10. Stage II Labor

When patient has reached Stage II labor a reassessment at least every 30 minutes x2 is done to assess descent of the fetus and rotation of the fetus. If the patient is making appropriate progress, the caregiver can anticipate vaginal delivery. Fetal descent should be > 1 cm per hour.

Evidence supporting this recommendation is of class: R

13. Management of Protraction Disorders

If the patient in Stage II labor is not making progress, management of protraction disorders will include:

- Evaluation of maternal position and fetus position. Consider having the patient move into different positions
- Evaluation of fluid balance
- Oxytocin augmentation for failed Stage II unless contraindicated (see Annotation 10, above)
- Obstetrical/surgical consult if necessary

Evidence supporting this recommendation is of classes: B, R

16. Operative Vaginal Delivery Contraindicated?

When the above measures fail, the caregiver will consider operative vaginal delivery including vacuum extraction or mid/low forceps delivery unless contraindicated. Vacuum extraction contraindications include:

- Presenting part is too high
- Provider is inexperienced
- Fetal distress with inability to do timely operative vaginal delivery
- Patient refuses

Note: When using vacuum extraction or forceps application with a suspected macrosomic infant, be aware of the risk of shoulder dystocia.

Evidence supporting this recommendation is of classes: C, D, R

18. Cesarean Delivery

After evaluating these options, caregiver will perform a cesarean section when necessary. Education for vaginal birth after cesarean trial of labor is given before discharge. See the related ICSI guideline Institute for Clinical Systems Improvement (ICSI) Web site.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org; e-mail: icsi.info@icsi.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Prevention, diagnosis and treatment of failure to progress in obstetrical labor. In: ICSI pocket guidelines. April 2003 edition. Bloomington (MN): Institute for Clinical Systems Improvement, 2003 Mar. p.178-80.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org; e-mail: icsi.info@icsi.org.

PATIENT RESOURCES

The following is available:

- Annotation Appendix A - Patient Education Handout. Active management of labor. In: Prevention, diagnosis and treatment of failure to progress in obstetrical labor. Bloomington (IL): Bloomington (MN): Institute for Clinical Systems Improvement, 2003 Oct.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This summary was completed by ECRI on June 30, 1999. The information was verified by the guideline developer on August 4, 1999. This summary was updated by ECRI on October 13, 2000 and January 15, 2002. This summary was updated on March 13, 2003. The updated information was verified by the guideline developer on May 15, 2003. This summary was updated on July 15, 2004.

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